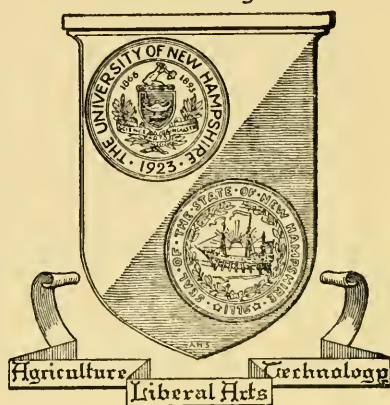


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NEW HAMPSHIRE
AGRICULTURAL EXPERIMENT STATION
Department of Agronomy

Results of Seed Tests for 1943

MADE FOR THE
STATE DEPARTMENT OF AGRICULTURE



By BESSIE G. SANBORN

THE UNIVERSITY OF NEW HAMPSHIRE
DURHAM, N. H.

RESULTS OF SEED TESTS

Made July 1, 1942, to June 30, 1943

This report contains the results of the seed inspection work for the State Department of Agriculture of two hundred and seventeen official samples collected throughout the State during the period from July 1, 1942, to June 30, 1943. Each of these samples was analyzed and the results mailed to the retail dealers concerned. In addition to these official samples, one hundred and forty-two private samples were analyzed, making a total of three hundred and fifty-nine samples inspected.**

COMPARISON OF SEEDS FOR TEN YEARS

Year	Samples Tested	Below in Purity		Below in Germination	
		Number	Per Cent	Number	Percent
1934	412	22	5.3	62	15.0
1935	391	28	7.1	74	18.9
1936	430	34	7.9	84	19.5
1937	439	31	7.0	70	15.9
1938	392	60	15.0	75	19.1
1939	426	32	7.5	100	23.5
1940	408	33	8.0	66	16.1
1941	416	29	6.9	46	11.0
1942	298	6*	2.0*	33	11.0
1943	217	10*	4.6*	22	10.1

*Two years ago the Association of Official Seed Analysts adopted a new table of tolerances applying to purity which allows a slightly wider variation from the guarantee. This fact may account for some of the decrease in the number of samples found below guarantee in purity for the last two years.

**Miss Beatrice M. Sanborn assisted with the purity and germination tests herein reported. For her services the writer wishes to express grateful acknowledgment.

In an effort to have the New Hampshire Seed Law conform with the new federal seed act, the state legislature at its last session passed a new law. The new law differs from the old mostly in respect to the addition of necessary features and requirements not previously covered.

The new regulations include among others the following four which should be especially noted:

- (1) Vegetable seeds as well as farm field seeds are included.
- (2) All vegetable and agricultural seeds must have been tested for germination within nine months of being offered for sale.
- (3) The labels for agricultural seeds must carry a statement relative to noxious weeds.
- (4) Each separate container or packet of seeds must bear the calendar month and year when seed therein was last tested for germination.

This means that all farm and vegetable seeds carried over the winter must be tested for germination before they are put on sale the next spring. A copy of the new law together with the rules and regulations pertaining to it are included in this report. The usual instructions relative to free testing of seeds and the charges made for tests in excess of six are given in these rules and regulations.

STATE OF NEW HAMPSHIRE

CHAPTER 224, LAWS OF 1943

AN ACT

To Regulate the Labeling, Sale and Offering or Exposing for Sale, of Agricultural and Vegetable Seeds.

AGRICULTURAL AND VEGETABLE SEEDS

I. DEFINITIONS. Terms used in this chapter shall be construed as follows:

I. The term "agricultural seeds" shall include the seeds of grass, forage, cereal and fibre crops and any other kinds of seeds commonly recognized within this state as agricultural or field seeds, and mixtures of such seeds.

II. The term "vegetable seeds" shall include the seeds of those crops which are grown in gardens or on truck farms and are generally known and sold under the name of vegetable seeds in this state.

III. The term "weed seeds" shall include the seeds of all plants generally recognized as weeds within this state, and shall include noxious weed seeds.

IV. Noxious weed seeds shall be divided into two classes, "primary noxious weed seeds" and "secondary noxious weed seeds" as herein defined; provided, that the commissioner of agriculture may add to or subtract from the list of seeds included under either definition whenever he finds that such additions or subtractions are within the respective definitions.

V. "Primary noxious weed seeds" shall include the seeds of perennial weeds such as those that reproduce and spread by underground roots or stems as well as by seed, and which, when established, are highly destructive and difficult to control in this state by ordinary good cultural practice. Primary noxious weed seeds in this state are the seeds of: Canada thistle (*Cirsium arvense*), field bindweed (*Convolvulus arvensis*), and quackgrass (*Agropyron repens*).

VI. "Secondary noxious weed seeds" shall include the seeds of such weeds as are very objectionable in field, lawns, or gardens of this state, but can be controlled by good cultural practices. The secondary noxious weed seeds in this state are the seeds of: dodder (*Cuscuta* spp.) and crab grass (*Digitaria sanguinalis*).

VII. The term "labeling" includes all labels, and other written, printed, or graphic representations, in any form whatsoever, accompanying and pertaining to any seed whether in bulk or in containers, and includes invoices.

VIII. The term "advertisement" means all representations, other than those on the label, disseminated in any manner or by any means, relating to seed within the scope of this chapter.

2. LABEL REQUIREMENT. Each separate container of agricultural or vegetable seed, including seeds in small packets, which is sold, offered for sale, or exposed for sale, within this state for sowing purposes shall bear thereon or have attached thereto in a conspicuous place a plainly written or printed label or tag in the English language, giving the information as set forth in sections 3 and 4.

3. AGRICULTURAL SEEDS. For agricultural seeds the following is required:

I. Commonly accepted name of kind, or kind and variety, of each agricultural seed component in excess of five per cent of the whole and the percentage by weight of each. Where more than one component is required to be named, the word "mixture" or "mixed" shall be associated with the name on the label.

II. Lot number or other lot identification.

III. Origin, if known, of alfalfa, red clover and field corn (except hybrid corn). If the origin is unknown, that fact shall be stated.

IV. Percentage by weight of all weed seeds, including those known as noxious weeds.

V. Secondary noxious weeds. The name and approximate number of each kind

of secondary noxious weed seed, per ounce in groups (A) and (B) and per pound in groups (C) and (D), when present singly or collectively in excess of—

(A) One seed or bulblet in each 5 grams of *Agrostis* spp., *Poa* spp., Rhodes grass, Bermuda grass, timothy, orchard grass, fescues (except meadow fescue), alsike and white clover, reed canary grass, Dallis grass, and other agricultural seeds of similar size and weight, or mixtures within this group;

(B) One seed or bulblet in each 10 grams of ryegrass, meadow fescue, foxtail millet, alfalfa, red clover, sweetclovers, lespedezas, smooth brome, crimson clover, *Brassica* spp., flax, *Agropyron* spp., and other agricultural seeds of similar size and weight, or mixtures within this group, or of this group with (A);

(C) One seed or bulblet in each 25 grams of proso, Sudan grass and other agricultural seeds of similar size and weight, or mixtures not specified in (A), (B), or (D);

(D) One seed or bulblet in each 100 grams of wheat, oats, rye, barley, buckwheat, sorghums (except Sudan grass), vetches, and other agricultural seeds of a size and weight similar to or greater than those within this group, or any mixtures within this group.

All determinations of noxious weed seeds are subject to tolerances and methods of determination prescribed in the rules and regulations under this chapter.

VI. Percentage by weight of agricultural seeds other than those required to be named on the label.

VII. Percentage by weight of inert matter.

VIII. For each named agricultural seed, percentage of germination, exclusive of hard seed, percentage of hard seed, if present, and the calendar month and year the test was completed to determine such percentages.

IX. Name and address of the person who labeled said seed, or who sells, offers, or exposes said seed for sale within this state.

4. **VEGETABLE SEEDS.** For vegetable seeds, the following is required:

I. Name of kind and variety of seed, and the calendar month and year when last tested for germination.

II. For seeds which germinate less than the standard last established by the commissioner of agriculture hereunder, and in type not smaller than ten point size: percentage of germination exclusive of hard seed; percentage of hard seed, if present; and the words "below standard."

III. Name and address of the person who labeled said seed, or who sells, offers or exposes said seed for sale within this state.

5. **ILLEGAL SALES.** It shall be unlawful for any person to sell, offer for sale or expose for sale any agricultural or vegetable seed within this state:

I. Unless the test to determine the percentage of germination required by sections 3 and 4 shall have been completed within a nine-month period, exclusive of the calendar month in which the test was completed, immediately prior to sale, exposure for sale, or offering for sale or transportation.

II: Not labeled in accordance with the provisions hereof, or having a false or misleading labeling.

III. Pertaining to which there has been a false or misleading advertisement.

IV. Any agricultural seeds containing any primary noxious weed seeds except as may be allowed under tolerances prescribed in the rules and regulations hereunder.

6. **PROHIBITIONS.** It shall be unlawful for any person within this state:

I. To detach, alter, deface or destroy any label provided for herein or the rules and regulations made and promulgated hereunder, or to alter or substitute seed, in a manner that may defeat the purposes hereof.

II. To disseminate any false or misleading advertisement concerning agricultural or vegetable seed in any manner or by any means.

III. To hinder or obstruct in any way any authorized person in the performance of his duties hereunder.

IV. To fail to comply with a "stop sale" order.

7. EXEMPTIONS. The provisions of sections 2 to 6, inclusive, do not apply to seed or grain not intended for sowing purposes, nor to seed in storage in, or consigned to, a seed cleaning or processing establishment for cleaning or processing, provided, that any labeling or other representation which may be made with respect to the unclean seed shall be subject to the provisions hereof.

8. EXCEPTIONS. No person shall be subject to the penalties hereof for having sold, offered or exposed for sale in this state any agricultural or vegetable seeds, which were incorrectly labeled or represented as to kind, variety, or origin which seeds cannot be identified by examination thereof, unless he has failed to take all proper precautions to insure the identity to be that stated in accordance with rules and regulations hereunder.

9. DUTIES AND AUTHORITY OF COMMISSIONER OF AGRICULTURE. The commissioner of agriculture, who may act through his authorized agents, shall have the power:

I. To sample, inspect, make analyses of, and test, agricultural and vegetable seeds transported, sold, offered or exposed for sale within this state for sowing purposes, at such time and place and to such extent as he may deem necessary to determine whether said agricultural or vegetable seeds are in compliance with the provisions hereof, and to notify promptly the person who transported, sold, offered or exposed the seed for sale, of any violation.

II. To prescribe, and after public hearing to adopt, rules and regulations governing the methods of sampling, inspecting, analysis, tests, and examination of agricultural and vegetable seed, and the tolerances to be followed in the administration hereof, which shall be in general accord with officially prescribed practice in interstate commerce, and such other rules and regulations as may be necessary to secure the efficient enforcement hereof.

III. To enter upon any public or private premises during regular business hours in order to have access to seeds subject to this chapter and the rules and regulations promulgated hereunder.

IV. To issue written or printed "stop sale" orders which shall prohibit further sale of any lot of agricultural or vegetable seed which the commissioner has reason to believe is in violation of any of the provisions hereof until the law has been complied with or said violation otherwise legally disposed of: Provided, that no "stop sale" order shall be issued or attached to any lot of seed without first giving the owner or custodian of such seed an opportunity to comply with the law or to withdraw the seed from sale.

V. To establish and maintain or make provision for seed testing facilities, to employ qualified persons, and to incur such expenses as may be necessary to comply with these provisions.

VI. To make or provide for making purity and germination tests of seeds for farmers and dealers on request; to prescribe rules and regulations governing such testing; and to fix and collect charges for the tests made. All fees collected hereunder shall be paid over by the commissioner to the state treasurer who shall keep the same in a special fund to be used only for purposes of this chapter.

VII. To cooperate with the United States department of agriculture in seed law enforcement.

10. SEIZURE. Upon the recommendation of the commissioner of agriculture or his duly authorized agents, the court of competent jurisdiction in the area in which the seed is located shall cause the seizure and subsequent denaturing, processing, or destruction to prevent the use for sowing purposes of any lot of agricultural or vegetable seed found to be unfit for sowing purposes: Provided, that in no instances shall the denaturing, processing, or destruction be ordered without first having given the claimant of said seed an opportunity to apply to said court for the release of said seed.

11. PENALTIES. Whoever violates any of the provisions of this chapter or any rule or regulation promulgated hereunder shall be fined not exceeding one hundred dollars for the first offense and not exceeding two hundred and fifty dollars for each subsequent offense. Fines collected hereunder shall be paid, by the court collecting the same, to the commissioner of agriculture and by him forwarded to the state treasurer for the use of the state.

12. PUBLICATION. The commissioner of agriculture shall publish, or cause to be published, the results of tests and analyses of samples of agricultural and vegetable seeds, as

herein provided, together with the names and addresses of the persons from whom the samples of seed were obtained. He may publish such other information as he may deem advisable concerning the value, character and use of certain seeds.

2. **TAKES EFFECT.** This act shall take effect upon its passage.

Approved March 10, 1943.

RULES AND REGULATIONS

SAMPLING.

(a) In order to secure a representative sample, equal portions shall be taken from evenly distributed parts of the quantity of seed to be sampled. Access shall be had to all parts of that quantity.

(b) For free-flowing seed in bags or bulk, a probe or trier shall be used. For small free-flowing seed in bags, a probe or trier long enough to sample all portions of the bag shall be used.

(c) Non-free-flowing seed, such as certain grass seed, uncleaned seed, or screenings, difficult to sample with a probe or trier, shall be sampled by thrusting the hand into the bulk and withdrawing representative portions.

(d) The portions shall be combined into a composite sample or samples.

(e) As the seed is sampled, each portion shall be examined, and, whenever there appears to be a lack of uniformity, additional samples shall be taken to show such lack of uniformity as may exist.

Bulk seeds shall be sampled by inserting a long probe or thrusting the hand into the bulk as circumstances require in several uniformly distributed parts of the quantity being sampled.

Bags. (1) In quantities of five bags or less, each bag shall be sampled.

(2) In quantities of more than five bags, at least every fifth bag but not less than five bags shall be sampled. Samples shall be drawn from unopened bags except under circumstances where the identity of the seed has been preserved.

In sampling packet seeds, entire unopened packets shall be taken.

Size of sample. The following are minimum weights of samples of seed to be submitted for analysis, test, or examination:

(1) Two ounces of grass seed not otherwise mentioned, white or alsike clover, or seeds not larger than these.

(2) Five ounces of red or crimson clover, alfalfa, ryegrass, brome-grasses, millet, flax, rape, or seeds of similar size.

(3) Two pounds of cereals, vetches, or seeds of similar or larger size.

(4) Two quarts of screenings.

ANALYSIS.

The New Hampshire seed laboratory will be guided in making purity and germination tests by the rules and regulations prescribed under the Federal Seed Act.

TOLERANCE.

Owing to the natural variation between tests, the following tolerances shall be allowed between the percentages found by analysis, test or examination and the percentages stated on the tag accompanying the seed:

For purity: Allowing "a" to represent the component being considered and "b" the difference between that percentage and 100, according to the following formula:

$$\text{Pure seed tolerance} = 0.6 \div \left(0.2 \times \frac{a \times b}{100} \right)$$

a sample of timothy guaranteed 99.20 would have an allowable variation of .75 or could test as high as 99.95 or as low as 98.45 and be "satisfactory."

For germination: The following tolerances are applicable:

HEALTHY SPROUTS FOUND BY TEST IN EACH 100 SEEDS	TOLERANCE
96 or over	5
90 or over but less than 96.....	6
80 or over but less than 90	7
70 or over but less than 80	8
60 or over but less than 70	9
Less than 60	10

Therefore, a sample of seed guaranteed 85% for germination may be as high as 92% or as low as 78% and be "satisfactory."

For weed seeds: The law requires in the labeling of agricultural seed (1) that the percentage of all weed seeds present shall be shown on the tag, (2) that no primary noxious weed seeds shall be present in the sample, and (3) that secondary noxious weed seeds shall be given by name and approximate number, per ounce in groups (A) and (B) and per pound in groups (C) and (D), when present singly or collectively in excess of—

(A) One seed or bulblet in each 5 grams of *Agrostis* species, *Poa* species, Rhodes grass, Bermuda grass, timothy, orchard grass, fescues (except meadow fescue), alsike and white clover, reed canary grass, Dallis grass and other agricultural seeds of similar size and weight, or mixtures within this group;

(B) One seed or bulblet in each 10 grams of ryegrass, meadow fescue, foxtail millet, alfalfa, red clover, sweetclovers, lespedezas, smooth brome, crimson clover, *Brassica* species, flax, *Agropyron* species, and other agricultural seeds of similar size and weight, or mixtures within this group or of this group with (A);

(C) One seed or bulblet in each 25 grams of proso, Sudan grass and other agricultural seeds of similar size and weight, or mixtures not specified in (A), (B), or (D);

(D) One seed or bulblet in each 100 grams of wheat, oats, rye, barley, buckwheat, sorghum (except Sudan grass), vetches, and other agricultural seeds of a size and weight similar to or greater than those within this group, or any mixtures within this group.

Certain tolerances are allowed, however, to provide for variations and unavoidable errors, but only within very narrow limits and for which there is always a standard formula for computation. Examples: (1) Timothy guaranteed only 2 per cent weed seeds will not be condemned if it has 2.59 per cent. (2) No primary noxious weed seeds are allowed, but the presence of two such seeds in 50 grams of timothy would not be considered a violation. (3) Similarly, some slight variation from the minimum requirement for labeling secondary noxious weed seeds will be passed as satisfactory.

FREE TESTING.

The Seed Testing Laboratory will allow six free tests, in a given year, to any resident company or person of New Hampshire, but such seeds must be received in the laboratory during the months of November, December, January and February. This number of samples, not including mixtures, may be analyzed either for purity or for germination, or three samples for both purity and germination, free of charge. A given seed company will be entitled to six private tests without charge, but not six from each branch store. For numbers in excess of six, a charge will be made for labor and consumable supplies only, the amount depending on the type of sample according to the following schedule:

Germination tests of all crop seeds, including timothy, clovers and alfalfa, 25 cents each;

Germination tests of all grasses except timothy, 50 cents each;

Germination tests of mixtures, 25 cents for each kind of seed present;

Purity analyses of cereals like corn and oats, 50 cents each; and of timothy, 75 cents each;

Purity analyses of all other kinds of crop seeds, except grasses, 75 cents each;

Purity analyses of the smaller grass seeds and of all mixtures of not more than two kinds of agricultural seeds, \$1.00 each;

All purity analyses of special mixtures, including those for lawn and pasture seeding, a charge sufficient to cover the actual cost of working the sample submitted for test, minimum charge of \$1.25.

Such private samples of seed to be tested should be drawn in such a way as to be representative of the bulk lot from which they are taken, and should be addressed to the State Seed Testing Laboratory, Durham, New Hampshire. Such private tests cannot be declared as state official tests unless drawn by a representative of the department of agriculture, as provided in Chapter 224 of the Public Laws. Fees must be paid before reports will be sent out.

The minimum weights of samples to be submitted for analysis are:

1. Two ounces of grass seed, white or alsike clover, or seeds not larger than these.
2. Five ounces of red or crimson clover, alfalfa, ryegrasses, millet, rape, or seeds of similar size.
3. One pound of cereal, vetches or seeds of similar or larger size.

The minimum number of seeds of any one kind to be submitted for a germination test is 400.

GERMINATION STANDARDS FOR VEGETABLE SEED.

Following are the germination standards established by the commissioner of agriculture pertaining to Section four of the act entitled Vegetable Seeds.

	PER CENT		PER CENT
Artichoke	60	Leek	60
Asparagus, including hard seeds..	70	Lettuce	80
Beans (except lima)	80	Muskmelon	75
Beans, lima	70	Mustard	75
Beets	65	Okra	50
Broccoli	75	Onion	70
Brussels sprouts	70	Parsley	60
Cabbage	75	Parsnip	60
Cauliflower	75	Peas	80
Carrot	55	Pepper	55
Celery and celeriac	55	Pumpkin	75
Chicory	65	Radish	75
Citron	65	Rhubarb	60
Collards	80	Rutabaga	75
Corn	75	Salsify	75
Cress, garden	40	Sorrel	60
Cress, water	25	Spinach (except New Zealand)..	60
Cucumber	80	Spinach (New Zealand)	40
Dandelion	45	Squash	75
Eggplant	60	Swiss chard	65
Endive	70	Tomato	75
Fetticus (cornsalad)	70	Tomato, husk	50
Kale	75	Turnip	80
Kohlrabi	75	Watermelon	70

LABELING.

The following labels are suggested, as meeting the minimum requirements of the New Hampshire seed law.

Example for unmixed agricultural seed:

John F. Doe Company Greene, N. H.	Mammoth Clover		Lot No. 243	
	Pure seed	98.65		
	Crop seed	.86	Germination	80%
	Weeds	.38	Hard seeds	7
	Inert matter	.11		
	Origin	Idaho	Date of test	Jan. 1943
	1 dodder per oz.			

Example for mixed agricultural seed:

John F. Doe Company Greene, N. H.	Grass seed, mixed		Lot. No. 0236	
	Purity:		Germination:	
	Perennial ryegrass	32.23%	92.5%	Jan. 1943
	Chewing fescue	18.08	85.0%	Dec. 1942
	Kentucky bluegrass	14.75	80.0%	Jan. 1943
	Canada bluegrass	15.37	58.5%	Jan. 1943
	Creeping bent	14.20	84.0%	Jan. 1943
	Crop seed	.61		
	Weed seed	2.07		
	Inert matter	2.69		
5 Crabgrass per oz.				

Example for vegetable seed:

(Up to standard)	"New York Lettuce John Smith, Dale, Ill. Date of Germination test: Feb. 7, 1943."
(For vegetable seed which germinates less than standard)	"New York Lettuce John Smith, Dale, Ill. Date of Germination test: Feb. 7, 1943."

BELOW STANDARD"

The law states that "each separate container of agricultural or vegetable seed, including seeds in small packets, shall be labeled"; but if a dealer has bulk lots of seeds exposed for sale and these bulk lots are properly labeled, he shall not be required to copy the information from the label on to each individual bag in which he delivers small lots of this bulk seed over the counter to customers.

N. H. EXPERIMENT STATION SEED INSPECTION, 1943

Name and Address of Dealer	Sample No.	Kind of Seed	Date Tested*	Purity		Germination	
				Found	Guaranteed	Found	Guaranteed
Ayers & Jenkins, Rochester	12613	Alsike Clover, 2853	1941	S	98.10	S	74
	12626	Oats, 73229	1942	S	98.38	S	93
	12614	Timothy, Liberty, 5948	1941	S	99.65	S	90
Badger Farm Creameries, Greenland	12716	Alsike Clover, Pan American, 15525	1943	S	99.30	S	83
	12689	Japanese Millet, 4655	1943	S	97.50	85.5	—
	12690	Red Clover, Pan American, Me- dium, 5055	1943	S	99.10	S	81
	12717	Timothy, Pan American, 1259...	1943	S	99.70	S	90
		Canada Field Peas, 2092	1943	S	99.00	S	90
Chase Grain Company, Plymouth, N. H.	12729	Hungarian Millet, 2227	1943	S	98.61	S	80.5
	12725	Japanese Millet, 5397	1943	S	98.96	84	92
	12721	Red Clover, Medium, 6148	1943	S	99.00	S	83
	12726	Redtop, 2033	1943	S	93.80	S	90
	12722	Timothy, 2336	1943	S	99.64	S	92
	12728	Oats, D-R-C No. 1, White	1942	S	98.00	S	95
	12692	Red Clover, Pine Tree, Medium, 24603	1941	S	99.20	S	85
Checkerboard Feed Store, Inc., Dover	12691	Redtop, Pan American, 4061	1941	S	96.00	S	90
	12693	Timothy, Pan American, 12527...	1941	S	99.60	S	90
	12673	Alsike Clover, 1557	1943	S	98.65	68	89
	12674	Alsike Clover, Pan American, 1559	1941	S	98.25	S	80
	12671	Red Clover, Pan American, Me- dium, 50524	1943	S	99.35	S	87
Checkerboard Feed Store, Inc., Exeter	12672	Redtop, Pan American, Fancy, 4032	1943	S	95.60	S	90
	12675	Timothy, Pan American, 12527...	1941	S	99.60	S	90
	12678	Alsike Clover, Fancy, 15519	1942	S	98.55	S	88
	12681	Redtop, Pan American, 40516...	1942	S	94.70	S	95
	12683	Rye, Winter Rosen, 83210	1942	92.52	96.25	72	85
S. A. Dow & Son, North Hampton	12680	Timothy, Pan American, 12510...	1943	S	99.60	S	90
	12816	Alsike Clover, 1022	1942	S	99.40	S	78
	12814	Japanese Millet, 1007	1942	S	99.00	S	90
Eastern States Farmers' Exchange, Concord	12812	Ladino Clover, 1057	1943	S	99.55	86	85
	12818	Rape, Dwarf Essex, 1012	1942	S	99.60	S	93
	12813	Red Clover, Mammoth, 1013	1942	S	99.25	S	85
	12819	Ryegrass, Domestic, 1010	1942	S	98.00	S	85
	12820	Sudan Grass, 1063	1943	S	98.50	73.5	84
	12817	Timothy, Pan American, 12510...	1943	S	99.60	S	90

*As stated on tag accompanying seed.

A—Above. S—Satisfactory.

Name and Address of Dealer	Sample No.	Kind of Seed	Date Tested*	Purity		Germination	
				Found	Guaranteed	Found	Guaranteed
Eastern States Farmers' Exchange... Concord (Continued)	12817	Timothy	1942	S	99.60	S	90
	12821	Hairy Vetch, 1058	1943	S	90.00	61	85
Eastern States Farmers' Exchange,.... Manchester	12760	Japanese Millet, 1007	1942		99.00	S	90
	12754	Mixture, Alsike & Timothy	1942	S	99.48	S	85
	12755	Mixture, Hay-Pasture No. 2	1942	S	99.18	S	82
	12756	Mixture, Hay-Pasture No. 4	1942	S	99.34	S	70
	12757	Mixture, Hay-Pasture No. 3	1942	S	99.33	S	77
	12758	Mixture, Hay-Pasture No. 1	1942	S	99.34	S	83
	12759	Ryegrass, Domestic, 1010	1942	S	99.00	S	93
	12753	Timothy, 996	1942	S	99.60	S	90
	12622	Hungarian Millet, 4851	1943	S	98.42	S	75
	12625	Red Clover, Pan American, 5944	1943		99.28	74.5	85
Eugene C. Foss Company, Rochester	12624	Redtop, Fancy, 4053	1943	S	94.10	S	91
	12623	Timothy, Pan American, 12522	1942	S	99.65	S	90
	12751	Alsike Clover, 25-327	1943	S	98.42	S	82
	12742	Timothy, 10-398	1942	S	99.68	S	93
General Mills, Inc., Derry	12697	Alsike Clover, Arco, 25-313	1942	S	99.00	S	87
	12695	Canada Field Peas, 40-68	1942	S	99.50	S	90
	12703	Japanese Millet, 38-231	1942	S	98.25	S	85
	12702	Oats, Victory Type, 43-1480 P. G.	1943	96.99	99.37	S	90
General Mills, Inc., Dover	12700	Red Clover, Anchor, Medium, 15-399	1942	S	99.27	S	80
	12701	Red Clover, Medium, 15-391	1942	S	99.00	A	75
	12696	Redtop, 30-130	1943	S	94.05	S	92
	12698	Timothy, Arco, 10-334	1941	S	99.60	S	90
	12699	Timothy, Arco, 10-357	1942	S	99.62	S	90
	12682	Alfalfa, Certified Blue Top, Grimm, 28-288	1942	S	99.50	A	72
	12720	Alsike Clover, Arco, 25-313	1942	S	99.00	S	87
General Mills, Inc., Exeter	12679	Barley, 6-row, 35-316	1942	S	98.50	S	90
	12685	Hungarian Millet, 38-233	1942		97.50	S	85
	12676	Japanese Millet, 38-231	1942		98.25	S	85
	12719	Japanese Millet, 38-261	1945	96.49	99.34	S	85
	12677	Red Clover, Anchor, 15-408	1942	S	99.10	S	80
	12686	Redtop, 30-111	1942	S	94.00	S	90
	12687	Redtop, 30-121	1942	S	92.29	S	90
	12718	Redtop, 30-130	1943	S	94.05	S	92
	12688	Soybeans, Black Wilson, 42-185	1942	S	99.00	S	90
	12684	Timothy, Arco, 10-367	1942	S	99.00	S	90
General Mills, Inc., Laconia	12824	Hungarian Millet, 38268	1943	S	98.60	S	80
	12822	Timothy, Arco, 10-334	1941	S	99.60	S	90

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Name and Address of Dealer	Sample No.	Kind of Seed	Date Tested*	Purity		Germination	
				Found	Guaranteed	Found	Guaranteed
General Mills, Inc., Portsmouth	12774	Red Clover, Medium, 10-399....	1943	S	99.27	S	80
	12773	Redtop, 30-130.....	1943	S	94.05	S	92
	12771	Rye, Spring, 89-131.....	1942	S	97.50	50	85
	12772	Timothy, Arco, 10-334.....	1941	S	99.60	S	90
James B. Griffin, Newmarket	12770	Alsike Clover, Pan American, 1552	1941	S	98.08	S	80
	12763	Japanese Millet, 4652.....	1943	S	99.00	S	85
	12762	Red Clover, Domestic, Medium, 50546.....	1942	S	99.24	S	81
	12769	Red Clover, Pan American, Me- dium, 5940.....	1941	S	99.15	67	80
Jefferson Feed & Supply Co., Rochester	12761	Redtop, Fancy, 4053.....	1943	S	94.10	77	91
	12621	Hungarian Millet, 38-237.....	1941	S	99.10	S	82
	12636	Hungarian Millet, 83-82.....	1942	S	99.58	S	85
	12634	Japanese Millet, J-5, B42.....	1941	S	98.92	S	85
Londonderry Grain Co., Londonderry	12635	Timothy, Pine Tree, 66338.....	1942	97.17	99.65	S	91
	12744	Alsike Clover, 28191.....	1943	97.11	98.95	S	81
	12747	Japanese Millet, 08176.....	1941	95.04	98.66	S	85
	12643	Carrot, Chantenay.....	....	..	....	66.5	..
Louie's Market, Laconia	12644	Tomato, Earliana.....	....	..	....	75.5	..
	12652	Alfalfa, Utah, Grimm, 3466....	1943	S	99.35	S	55
	12653	Alfalfa, Grimm, 27762-8-9.....	1943	S	99.44	S	70
	12661	Alsike Clover, 21954.....	1942	S	98.00	S	72
Merrimack Farmers' Exch., Inc., Concord	12663	Alsike Clover, 3882.....	1943	S	96.25	A	75
	12648	Kentucky Bluegrass, 24956.....	1942	80.06	86.00	S	75
	12655	Hungarian Millet, J6N43.....	1942	S	99.48	S	83
	12662	Japanese Millet, J5B42.....	1941	S	98.92	S	85
	12651	Lawn Seed, Merrimack.....	....	S	98.00	S	95
	12654	Rape, Dwarf Essex, 95-13.....	1943	S	99.84	A	90
	12657	Red Clover, 24987.....	1943	S	99.00	S	80
	12658	Red Clover, medium, 2456.....	1943	S	99.74	S	76
	12659	Red Clover, Medium, 24934-5....	1942	S	99.56	S	80
	12649	Redtop, 41185.....	1943	A	93.00	S	90
	12656	Rye, Spring, 23852.....	1942	S	96.00	62.5	75
	12660	Rye, Spring, Seed, 3585.....	1943	S	98.00	S	80
Merrimack Farmers' Exch., Inc., Derry	12645	Timothy, 24401.....	1943	S	99.60	S	86
	12646	Timothy, 66338.....	1942	S	99.65	S	91
	12647	Timothy, 66430.....	1943	S	99.70	S	93
	12630	Wheat, Spring, Marquis, 23594...	1942	S	99.00	S	85
	12746	Alsike Clover, Pine Tree, 21954...	1942	S	98.00	S	72
	12749	Ladino Clover, 26456.....	1943	S	99.15	S	68
	12748	Red Clover, Solar Medium, 10610	1942	S	99.38	S	84
	12750	Sudan Grass, 098322.....	1942	S	98.46	76	85

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Name and Address of Dealer	Sample No.	Kind of Seed	Date Tested*	Purity		Germination	
				Found	Guaranteed	Found	Guaranteed
Merrinack Farmers' Exch., Inc., Exeter	12665	Alsike Clover, Pine Tree, 21954..	1942	S	98.00	A	72
	12668	Oats, Merrinack .....	....	S	95.00	S	95
	12664	Red Clover, Pan American, Me- dium, 24935 .....	....	S	99.56	S	80
	12667	Redtop, Pine Tree, 41141	1942	S	99.56	S	80
	12666	Timothy, Pine Tree, 66383	1942	S	93.40	S	92
			1942	S	99.65	S	91
Merrinack Farmers' Exch., Inc., Rochester	12618	Alfalfa, Utah, Grimm, 3466	1943	S	99.35	S	55
	12616	Japanese Millet, 81207	1941	S	97.00	S	87
	12620	Red Clover, Solar, Medium, 10547	1942	S	99.36	S	86
	12617	Redtop, Pine Tree, 41141	1942	S	93.40	S	92
	12615	Sudan Grass, 1336	1942	S	97.70	S	80
	12619	Timothy, Oriole, 24401	1943	S	99.60	S	86
	12732	Alsike Clover, 15510	1943	S	99.40	S	86
	12731	Barley, 6-row, Lot 8013	1943	S	99.65	S	95
J. J. Moreau & Son, ..., Manchester	12735	Buckwheat, Japanese, 8111	1943	S	99.10	S	92
	12741	Corn, Leaming, 70331	1943	S	99.00	S	90
	12739	Hungarian Millet, 4857	1943	S	98.42	S	75
	12738	Japanese Millet	1943	S	99.00	S	85
	12733	Oats, Victory Seed, 82-9	1943	S	99.00	S	91
	12734	Oats, Swedish, 82-3	1942	S	98.82	S	90
	12737	Red Clover, 50512	1943	S	99.11	S	89
	12736	Timothy, 12510	1943	S	99.60	S	90
	12740	Wheat, Spring, Marquis, 84110..	1943	S	99.10	S	92
	12776	Redtop, Pan American, 41879 ..	1941	S	95.00	S	92
	12775	Timothy, Pan American, 66943..	1941	S	90.75	83	92
A. M. Rand, ..., Plymouth	12730	Japanese Millet, 08179	1943	S	99.00	S	95
	12727	Redtop, 51-11	1943	S	90.58	S	90
	12724	Timothy, 65-11	1943	S	99.60	S	90
	12723	White Clover, 83-11	1943	S	99.00	S	68
Rochester Grain Company, ..., Rochester	12640	Alsike Clover, Liberty, 5357	1943	S	97.05	S	79
	12628	Barley, 6-Row, Wisc. 38, 4005..	1943	S	98.45	S	92
	12637	Hungarian Millet, 2227	1943	S	98.61	S	80.5
	12629	Japanese Millet, 1034	1943	S	99.40	S	90
	12631	Japanese Millet, 6058	1943	S	98.28	S	90.5
	12627	Red Clover, Medium, 5382	1943	S	99.10	80.5	92
	12632	Red Clover, Liberty, Medium, 6173	....	S	99.50	S	94.50
	12630	Redtop, Fancy, 3702 .....	....	S	92.83	S	91.5
	12639	Redtop, Fancy, 2033	1943	S	93.80	S	90
	12633	Timothy, Liberty, 3604	1942	S	99.70	S	90
	12638	Timothy, Liberty, 2350	1943	S	99.80	S	90

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Name and Address of Dealer	Sample No.	Kind of Seed	Date Tested*	Purity		Germination	
				Found	Guaranteed	Found	Guaranteed
S. A. Schurman & Son, ... Portsmouth	12764	Buckwheat, Japanese, 8111	1943	S	99.10	S	92
	12765	Golden Millet, 4751	1943	S	99.36	S	82
	12767	Hungarian Millet, 4851	1943	S	98.42	S	75
	12766	Japanese Millet, 4652	1943	S	99.00	S	85
	12768	Timothy, Pan American, 1253	1943	S	99.60	S	90
	12709	Alsike Clover, Liberty, 7285	1939	S	97.50	74.5	86
	12713	Barley, Wisc. 38, 6-row, 5987	1942	S	98.79	S	92
	12715	Hungarian Millet, 6181	1942	S	99.04	51.5	80
J. H. Seavey, ... Dover	12704	Japanese Millet, 1034	1943	S	99.40	S	90
	12705	Japanese Millet, 5447	1940	S	98.00	S	90
	12706	Oats, Victory, 5924	1941	S	98.50	S	93
	12710	Rape, 4461	1940	S	99.51	85.5	95
	12707	Red Clover, Liberty, Medium, 2491 .....	....	S	99.04	S	78
	12708	Redtop, Fancy, 3326	1941	S	97.50	S	90
	12712	Redtop, Fancy, 3072	1941	S	97.18	S	92
	12711	Rye, Winter Rosen, 2012	1942	S	99.00	A	85
	12714	Timothy, Liberty, 3604	1942	S	99.70	S	90
	12825	Kentucky Bluegrass, 03253	1942	S	87.60	39	80
	12827	Hungarian Millet, 8386	1942	S	98.90	S	70
	12830	Japanese Millet, 81-3	1942	S	98.10	S	85
	12828	Redtop, 41159	1942	S	92.60	S	92
	12829	Timothy, 66356	1942	S	99.60	S	91
	12826	White Clover, 26445	1942	S	98.75	S	60
	12810	Alfalfa, Grimm, 27-117	1943	S	99.00	S	72
J. B. Varick Company, ... Manchester	12787	Alsike Clover, 21943	1942	S	98.15	S	75
	12788	Alsike Clover, 21996	1943	S	99.00	S	77
	12789	Alsike Clover, 21951-2	1942	S	98.00	S	75
	12777	Barley, Wisc. 38, 71275 .....	....	S	99.80	87.5	97
	12794	Barley, Wisc. 38, 71277	1943	S	99.70	A	82
	12790	Kentucky Bluegrass, 03244	1942	S	86.00	S	80
	12791	Kentucky Bluegrass, 0344	1942	A	87.00	S	83
	12792	Kentucky Bluegrass, 32403	1943	S	87.80	S	92
	12793	Chewings Fescue, 034689, No. 2	1942	S	97.85	S	92
	12795	Field Peas, Canada Type, 085451	1943	S	99.50	S	93
	12797	Field Peas, 85564	1943	S	99.50	55	80
	12798	Hungarian Millet, 8386	1942	S	98.90	S	70
	12799	Japanese Millet, 08174	1942	S	99.00	S	94
	12800	Japanese Millet, 08191	1942	S	99.00	S	87
	12801	Japanese Millet, 81-17	1940	S	99.89	S	89
	12802	Japanese Millet, 81207	1942	S	97.82	S	90
	12803	Oats, Victory Type, 73233	1943	S	99.67	S	95
	12804	Orchard Grass, 37-57	1943	S	85.00	S	80
	12805	Red Clover, Medium, 2415		S	98.52	S	79

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Name and Address of Dealer	Sample No.	Kind of Seed	Tested*	Purity		Germination	
				Found	Guaranteed	Found	Guaranteed
J. B. Varick Company, Manchester	12806	Red Clover, Medium, 24848	1942	S	98.58	A	80
	12807	Red Clover, Medium, 24848	1942	S	98.58	A	80
	12808	Redtop, 41170	1943	S	95.20	S	92
	12809	Redtop, 4154	1942	S	95.90	S	93
	12779	Rye, Winter Roscn, 5202	1942	S	99.00	S	85
	12811	Rye, Spring, 74266	1942	S	98.01	S	90
	12796	Ryegrass, Domestic, 038235	1942	S	99.00	S	90
	12786	Sudan Grass, 098323	1942	S	98.46	73	85
	12783	Timothy, 66392	1942	S	99.65	S	92
	12784	Timothy, 66338	1942	S	99.65	S	91
	12785	Timothy, 6687	1941	S	99.70	S	90
	12780	Wheat, Winter, Yorkwin, 3549	1942	S	99.44	25	94
	12781	White Clover, 26439	1942	S	98.50	S	80
	12782	White Clover, 026637-1, 26445	1942	S	98.75	S	60
	12778	Winter Vetch, 099196	1943	S	99.53	S	82
	12745	Red Clover, 24848	1942	S	98.58	A	80
	12743	Redtop, Pine Tree, 4154	1942	S	95.90	S	93
	12752	Soybeans, Wilson, 25006	1943	S	98.00	S	80
	12642	Bert, Egyptian, Extra Early .....	.....	..	.....	75.5	..
	12641	Carrot, Chantenay .....	.....	..	.....	75.5	..
W. A. Young, Exeter	12669	Alsike Clover, 21534	1939	97.59		70	81
	12670	Redtop, 68-206	1941	S	96.65	S	92

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